TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT
MOBILE TEMPORARY VENTILATION SYSTEM FOR THE ENVIRONMENTAL RESTORATION PROJECT

Identification Number: RL-DD073
Date: August 2001
Program: Decontamination and Decommissioning
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-RC01
Waste Stream: N/A
TSD Title: N/A
Waste Management Unit (if applicable): N/A
Facility: All facilities requiring ventilation

Priority Rating: This entry addresses the Accelerated Cleanup: Paths to Closure (ACPC) Priority:

____ 1. Critical to the success of the ACPC
__X__ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
____ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: A mobile temporary ventilation system for the Environmental Restoration Project

Need/Opportunity Category: *Technology opportunity* - the project desires an alternative to the current or planned baseline technology/process (i.e., a baseline exists but can be improved).

Need Description: Before a facility can be decommissioned, it is desirable to turn off and permanently disconnect all electrical power to the facility for safety. However, if ventilation is required for containing contamination while decommissioning work is ongoing, electrical power cannot be turned off and disconnected. A portable system that can be moved from facility to facility would alleviate the need to construct temporary ventilation at each facility.

Schedule Requirements:
Earliest Date Required: 10/1/2001
Latest Date Required: 9/30/2046

Problem Description: Negative pressure must be maintained on some facilities to reduce the potential of the spread of contamination within the facilities to “clean” areas and to reduce the potential of contamination release to the environment. Maintaining the original ventilation system during D&D requires personnel to perform selective energy checks on the original electrical system so that unneeded electrical paths may be disconnected, increasing electrical risk to personnel. Constructing temporary ventilation for each facility requires manpower and time.

Benefit to the Project Baseline of Filling Need: Worker safety will be enhanced and the potential of an environmental release will be minimized by meeting this need. Meeting this need would allow workers to turnoff and disconnect all electrical power without performing energy checks, thereby reducing worker load and cost. Meeting this need would also do away with the need to construct a temporary ventilation system for each facility, thereby reducing manpower and decreasing the schedule.

Functional Performance Requirements: The system must meet Clean Air Act requirements and allow for sampling. The system must be able to maintain negative pressure in a facility. It may use existing ductwork, when available, but should also be applicable when no closed-system ductwork is available. Exhaust units and supply air conditioning equipment are required. Two sets of functional requirements are provided below for each category of equipment:

Exhaust Air:

1. 4,000 cfm minimum at 5.0" w.g. SP with clean filters to 6,000 cfm maximum at 10.0" w.g. SP with dirty filters.
2. 6,000 cfm minimum at 5.0" w.g. SP with clean filters to 12,000 cfm maximum at 10.0" w.g. SP with dirty filters.

Supply air-handling Units:

1. Fan performance range is 3,500 cfm minimum at 5.5" w.g. to 5,500 cfm maximum at 6.5" w.g. SP with a heating coil capacity of 55 kW, 480 V, 3 phase, 60 Hz power supply, and a cooling coil capacity of 25 tons of refrigeration.
2. Fan performance range is 5,500 cfm minimum at 5.5" w.g. to 11,000 cfm maximum at 6.5" w.g. SP with a heating coil capacity of 110 kW, 480 V, 3 phase, 60 Hz power supply, and a cooling coil capacity of 45 tons of refrigeration.

WBS No.	***TIP No***.
1.4.03.1.1	N/A

Relevant PBS Milestone: PBS-MC-031

Justification for Need:

Technical: Having to selectively turnoff and disconnect electrical power increases worker safety risk.

Regulatory: Clean Air Act.

Environmental Safety and Health: Worker safety will be enhanced and the potential of an environmental release will be minimized by meeting this need.

Cost Savings Potential (Mortgage Reduction): Meeting this need would allow workers to turnoff and disconnect all electrical power without performing energy checks, thereby reducing worker load and cost.

Cultural/Stakeholder Concerns: Stakeholders are concerned with environmental and worker protection.

Other: None known.

Current Baseline Technology: Maintaining use of the original ventilation system and selectively performing energy checks, turning off and disconnecting electrical power is one baseline used by the projects. The other baseline is to construct a temporary, job specific ventilation system at each new facility.

End User: Environmental Restoration Project

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